

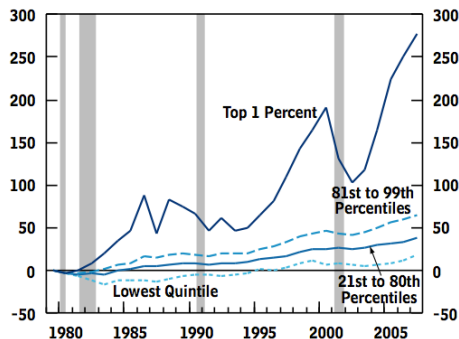
# The Skills Problem

James Heckman  
University of Chicago

Early Childhood Luncheon  
October 24th, 2012  
Louisville, Kentucky

## Cumulative Growth in Average After-Tax Income, by Income Group

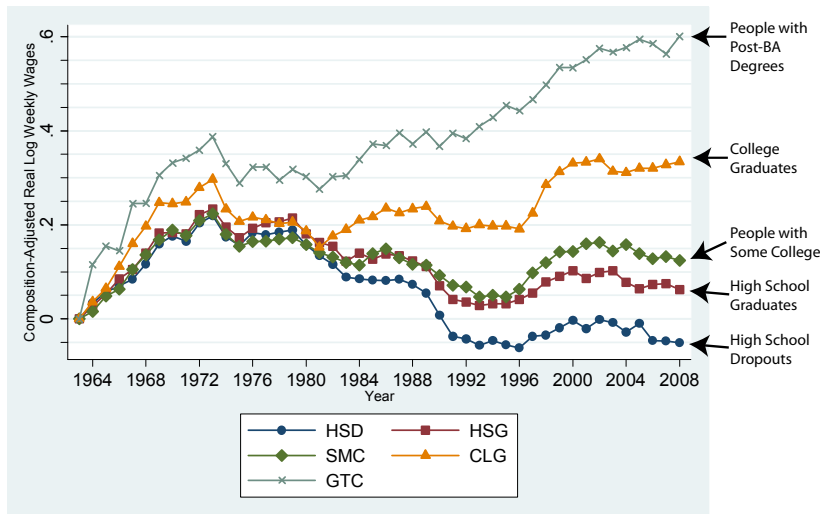
(Percentage change in income since 1979, adjusted for inflation)



Source: Congressional Budget Office.

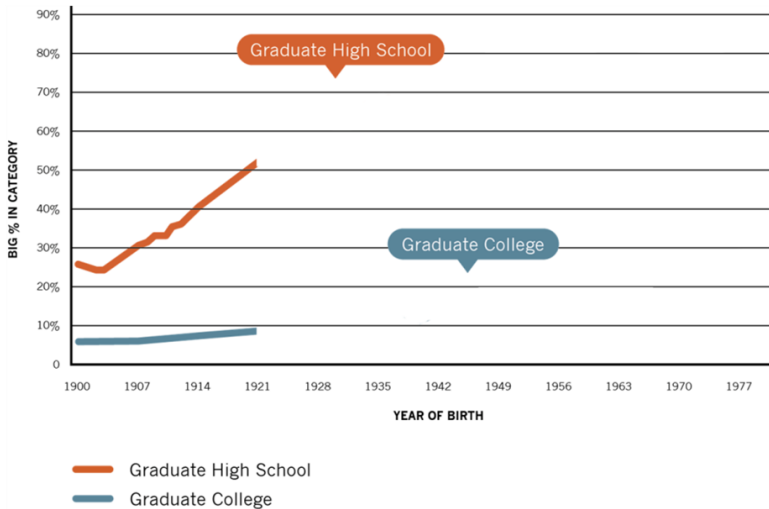
Income — Average real after-tax household income.

## Real, Composition-Adjusted Log Weekly Wages for Full-Time Full-Year Workers: Males

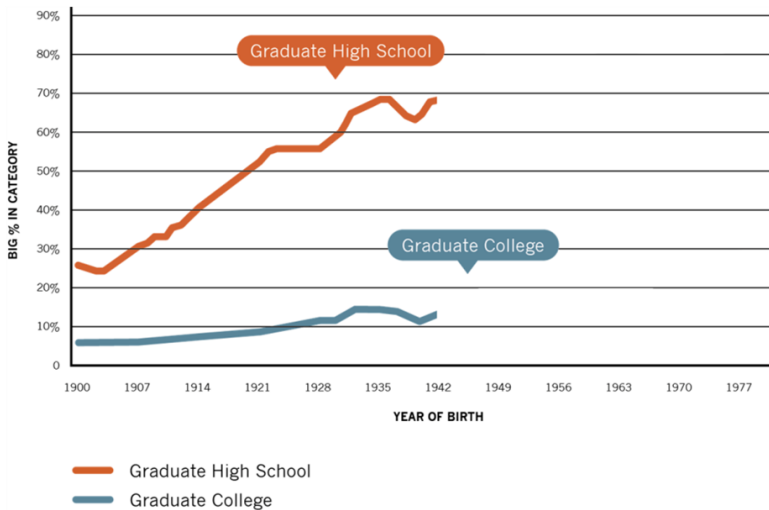


Source: Recreated from Acemoglu and Autor, 2011

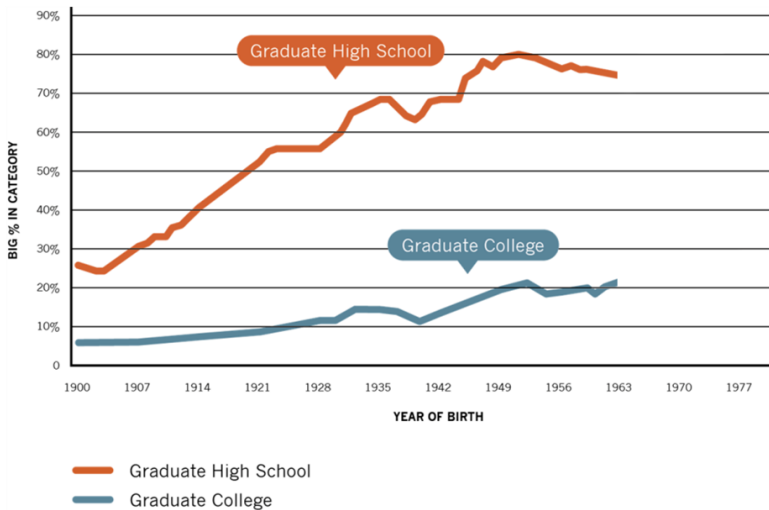
# The Decline of the American Blue-Collar Middle Class



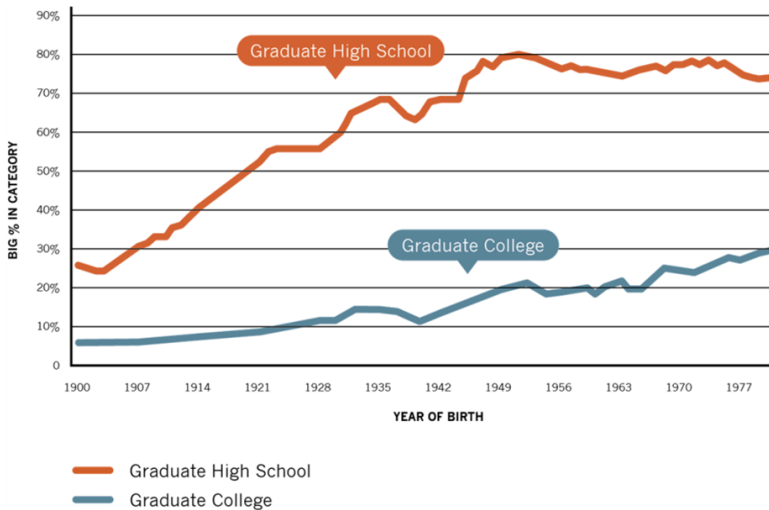
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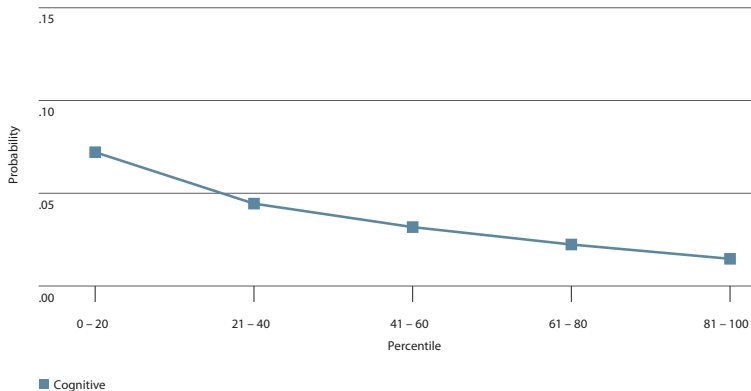
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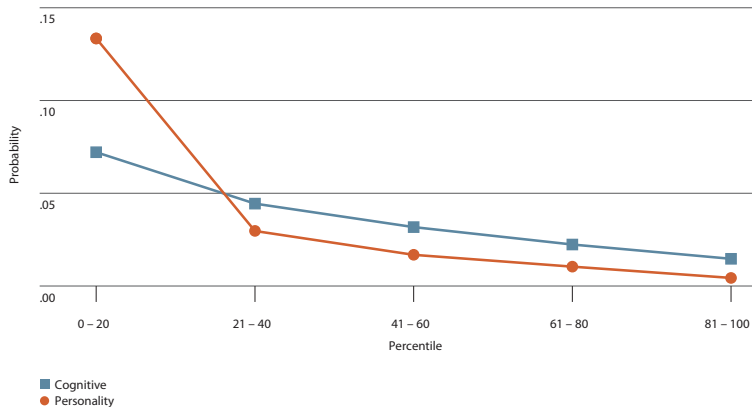
## Ever been in jail by age 30, by ability (males)



Note: This figure plots the probability of a given behavior associated with moving up in one ability distribution for someone after integrating out the other distribution. For example, the lines with markers show the effect of increasing noncognitive ability after integrating the cognitive ability.

Source: Heckman, Stixrud, and Urzua (2006).

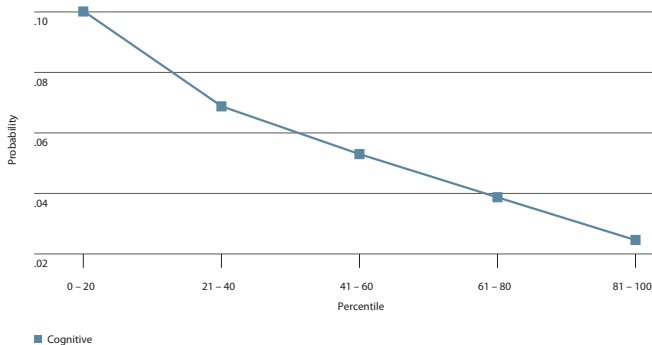
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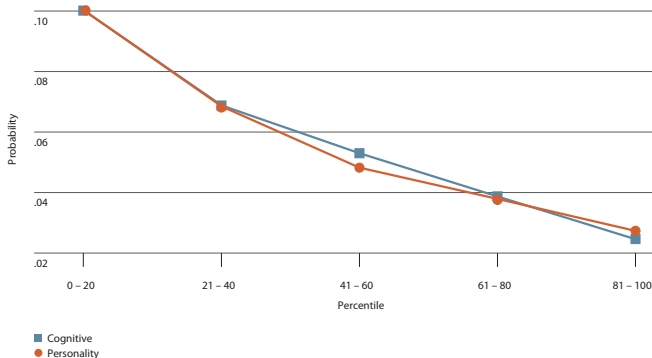
## Probability of being single with children (females)



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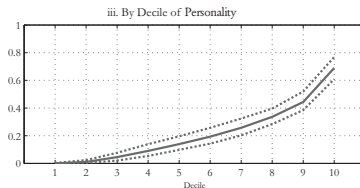
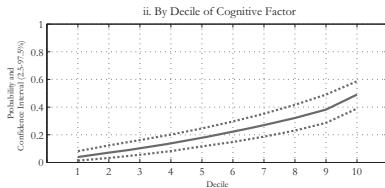
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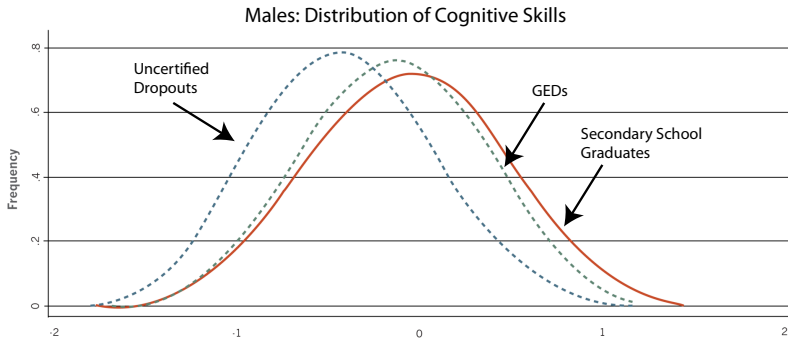
Source: Heckman, Stixrud, and Urzua (2006).

# Probability of being a 4-year college graduate by age 30

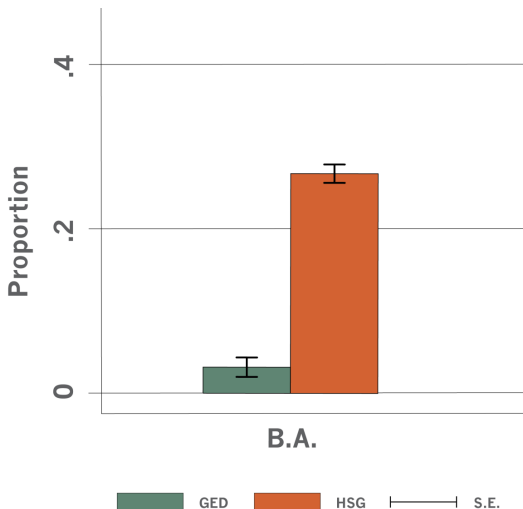


Notes: The data are simulated from the estimates of the model and our NLSY79 sample. We use the standard convention that higher deciles are associated with higher values of the variable. The confidence intervals are computed using bootstrapping (200 draws).

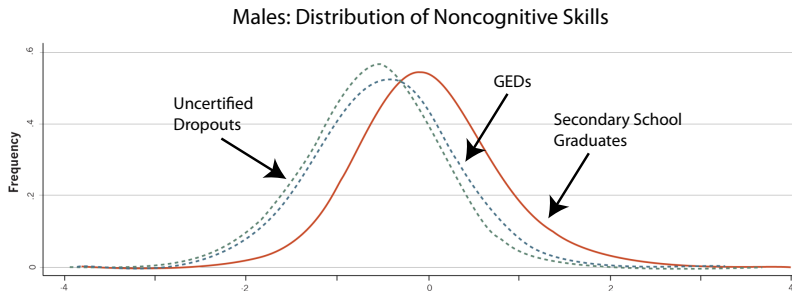
# Cognitive Ability by Educational Status



# Post-Secondary Educational Attainment Across Education Groups Through Age 40 (NLSY79) — Males



# Distribution of Noncognitive Skill



# Can ability differences explain racial-ethnic schooling gaps?

White-Black Gap

White-Latino Gap

## HIGH SCHOOL COMPLETION GAP

Actual White-Minority Gap

.06 (.01)

.14 (.02)

Ability Adjusted Gap

-.14 (.03)

-.12 (.04)

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### COLLEGE ENTRY PROBABILITIES GIVEN HIGH SCHOOL COMPLETION

Actual White-Minority Gap

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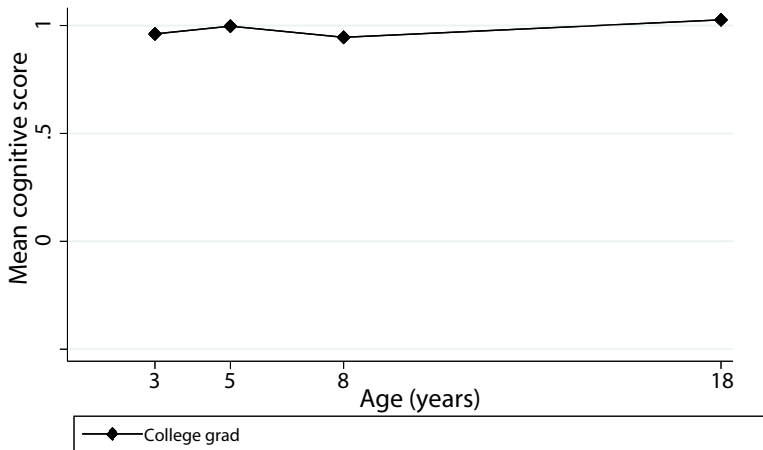
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Ability Adjusted Gap

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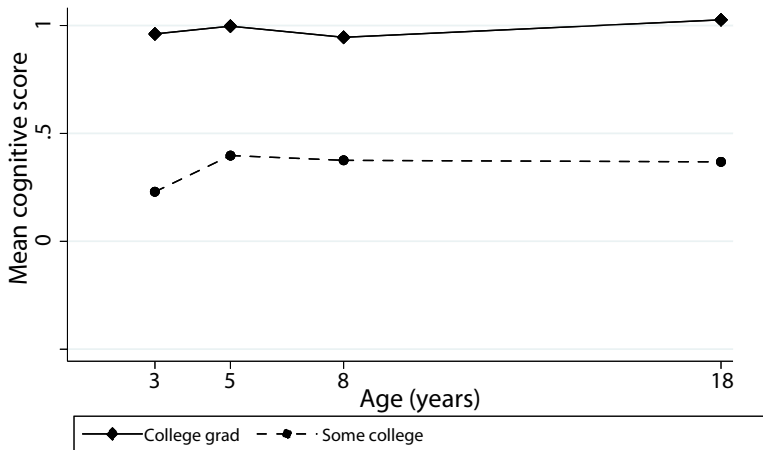
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## Trend in mean by age for cognitive score by maternal education



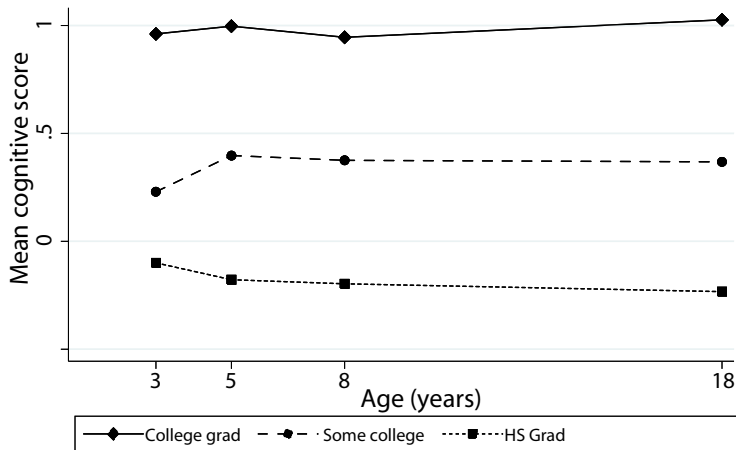
Each score standardized within observed sample. Using all observations and assuming data missing at random. Source: Brooks-Gunn et al. (2006).

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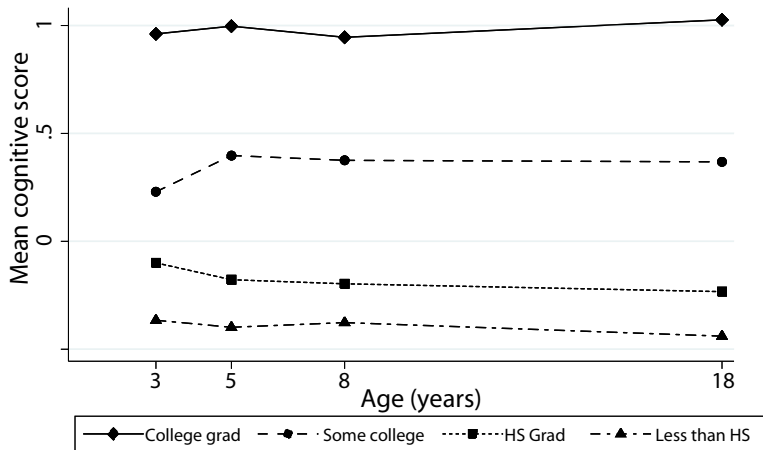
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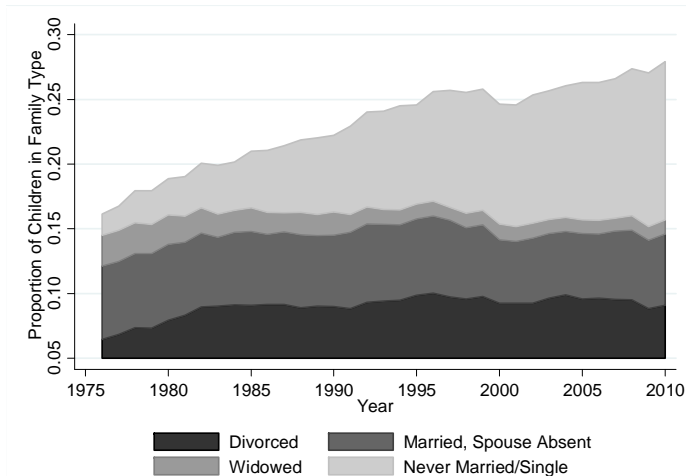
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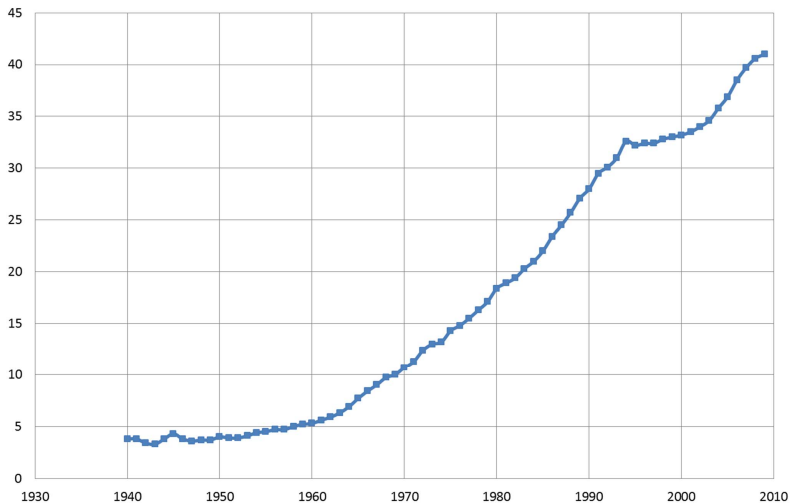
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## Children Under 18 Living in Single Parent Households by Marital Status of Parent



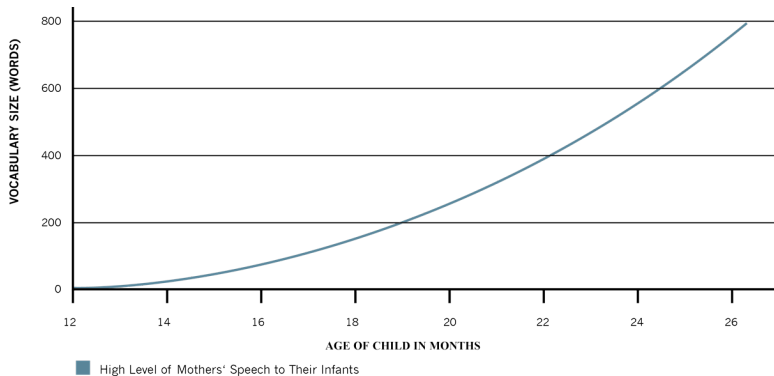
Source: March CPS 1976-2010 ; Note: Source: March CPS 1976-2010. Note: Parents are defined as the head of the household. Children are defined as individuals under 18, living in the household, and the child of the head of household. Children who have been married or are not living with their parents are excluded from the calculation. Separated parents are included in "Married, Spouse Absent" Category

## Percent of births to unmarried women: United States



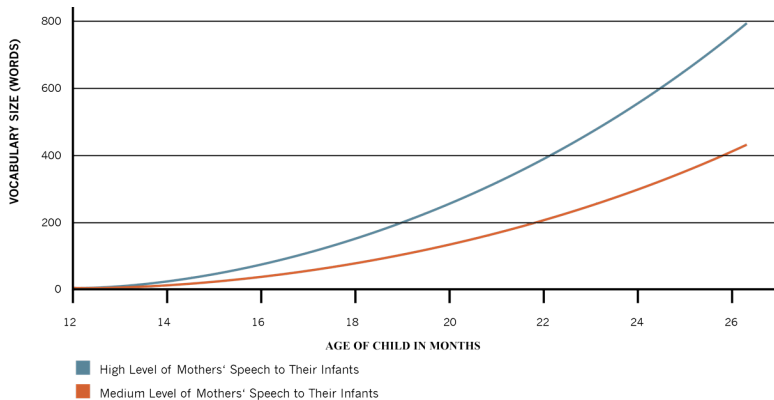
Source: Center for Disease Control and Prevention; Note: For the period 1940-1950 on 1940 and 1950 birth rates are presented; Age of mother 15-44

# Mothers' Speech and Child Vocabulary



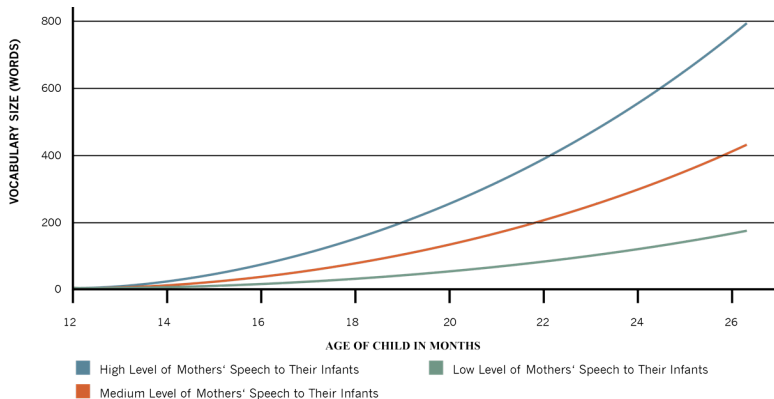
Source: *Huttenlocher et al. (1991)*

# Mothers' Speech and Child Vocabulary



Source: Huttenlocher et al. (1991)

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Children enter school with “meaningful differences” in vocabulary knowledge.

### 1. Emergence of the Problem

In a typical hour, the average child hears:

Family Status	Actual Differences in <u>Quantity</u> of Words Heard	Actual Differences in <u>Quality</u> of Words Heard
Welfare	616 words	5 affirmatives, 11 prohibitions
Working Class	1,251 words	12 affirmatives, 7 prohibitions
Professional	2,153 words	32 affirmatives, 5 prohibitions

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## 2. Cumulative Vocabulary Experiences

Family Status	Words heard per hour	Words heard in a 100-hour week	Words heard in a 5,200 hour year	Word heard in 4 years
Welfare	616	62,000	3 million	13 million
Working Class	1,251	125,000	6 million	26 million
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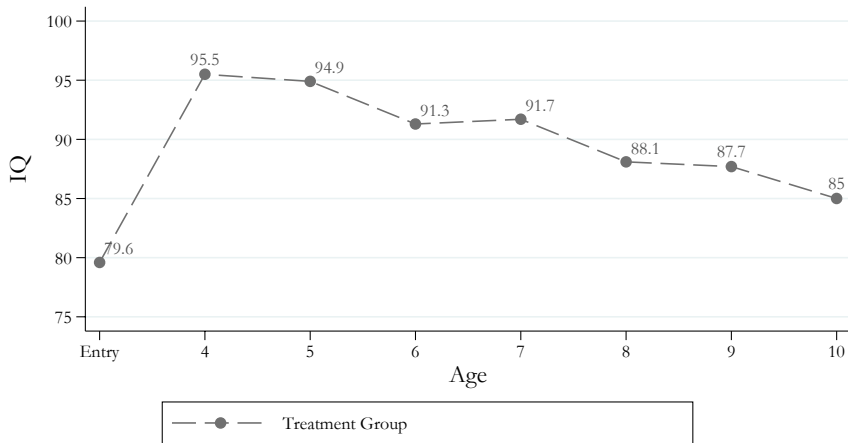
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## 3. Cumulative Vocabulary at Age 3

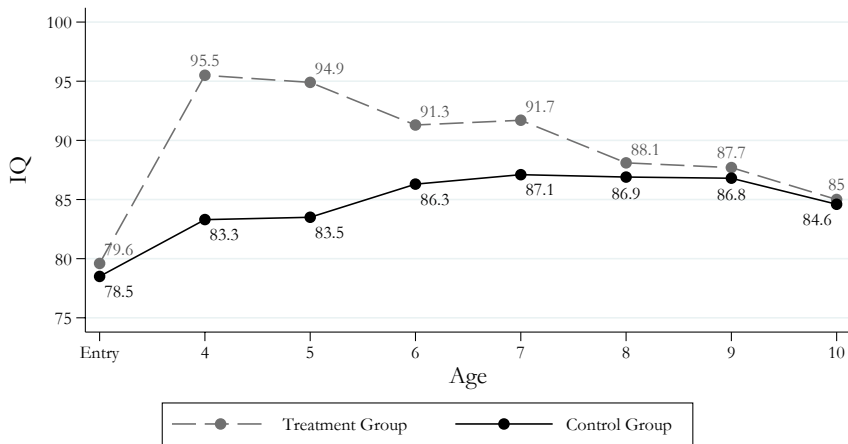
Cumulative Vocabulary at Age 3	
Children from welfare families:	500 words
Children from working class families:	700 words
Children from professional families:	1,100 words

## Perry preschool program: IQ, by age and treatment group



Source: Perry Preschool Program. IQ measured on the Stanford Binet Intelligence Scale (Terman & Merrill, 1960). Test was administered at program entry and each of the ages indicated.

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# Skills Enhance Each Other: Technology of Skill Formation

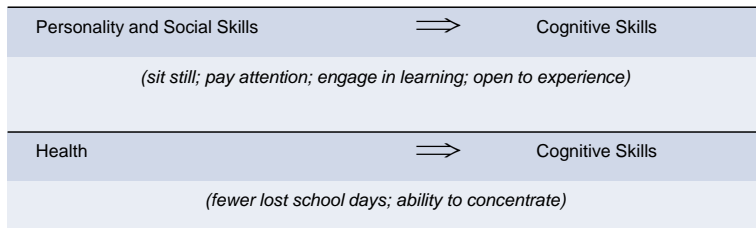
Personality and Social Skills



Cognitive Skills

*(sit still; pay attention; engage in learning; open to experience)*

# Skills Enhance Each Other: Technology of Skill Formation



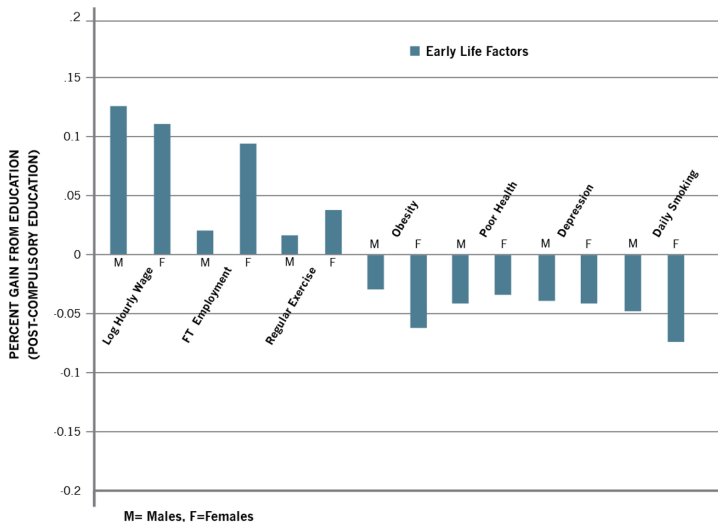
# Skills Enhance Each Other: Technology of Skill Formation

Personality and Social Skills	⇒	Cognitive Skills
<i>(sit still; pay attention; engage in learning; open to experience)</i>		
Health	⇒	Cognitive Skills
<i>(fewer lost school days; ability to concentrate)</i>		
Cognitive Skills	⇒	Produce better health practices; produce more motivation; greater perception of rewards.
<i>(child better understands and controls its environment)</i>		

Outcomes

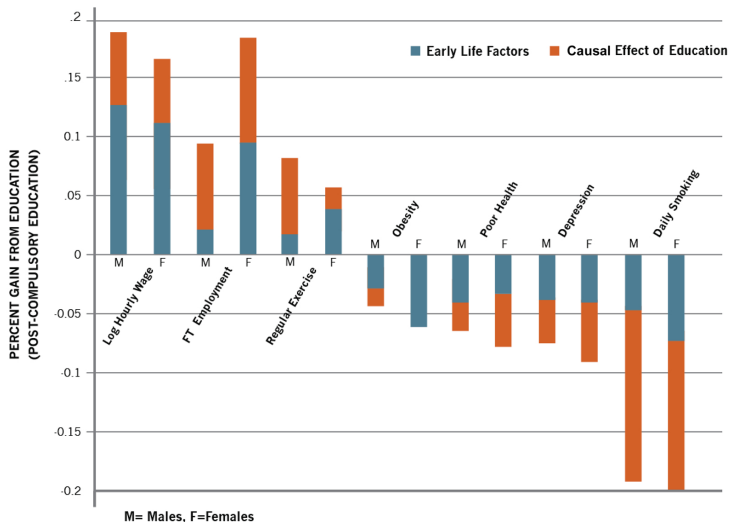
increase productivity, higher income  
better health, more family investment  
upward mobility, reduced social costs

# Disparities by Education (Post-compulsory Education)



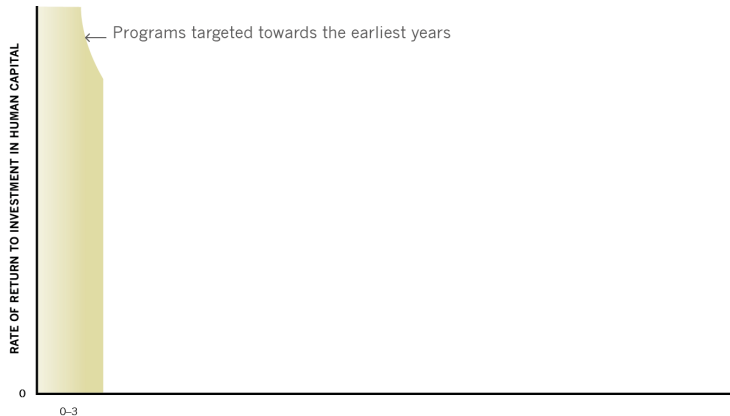
Note: Conti and Heckman (2010). Author's calculations using BCS70.

# Disparities by Education (Post-compulsory Education)



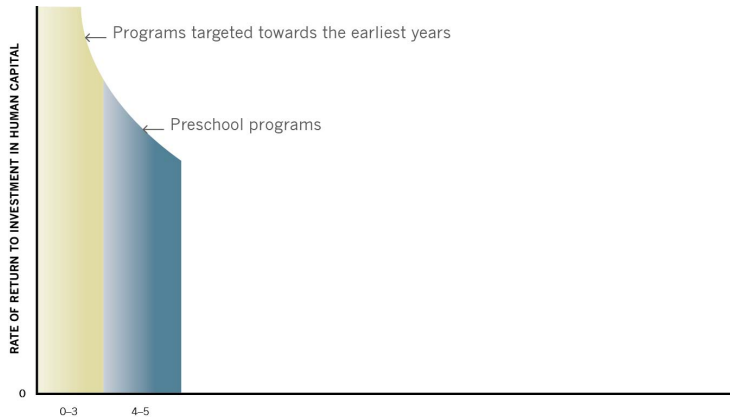
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# Returns to a Unit Dollar Invested



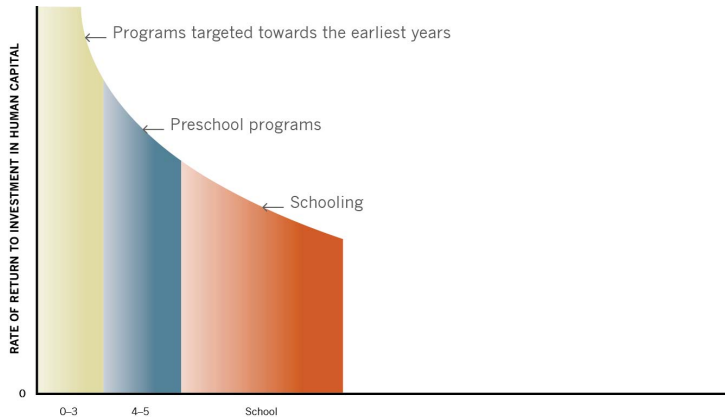
Source: Heckman (2008).

# Returns to a Unit Dollar Invested



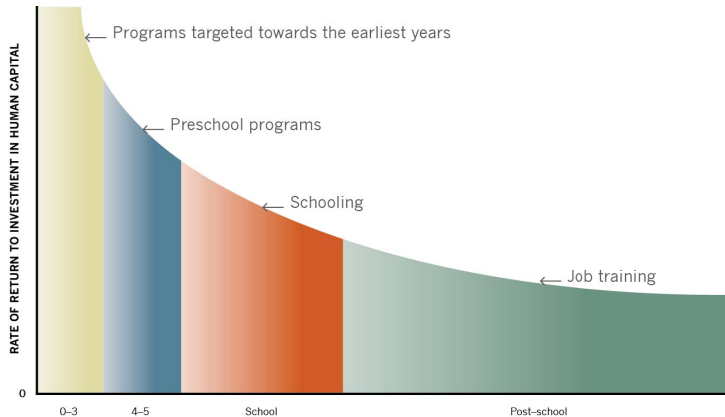
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